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Studies of Hydrogenic Quantum Systems Using the Feynman-Kac Path Integral Method J.M. REJCEK, N.G. FAZLEEV, Department of Physics, University of Texas at Arlington — The Feynman-Kac path integral method is applied to several hydrogenic quantum systems for the purpose of evaluating eigenvalues of the lowest eigenstates. These are computed by random walk simulations on a discrete grid. The systems studied include free hydrogen, hydrogen and antihydrogen in a confined spherical well. The study provides the latest simulation analysis and includes rescaling and the use of symmetry that allows higher order eigenstates to be computed. The method provides exact values in the limit of infinitesimal step size and infinite time for the lowest eigenstates.

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